FIG. 1

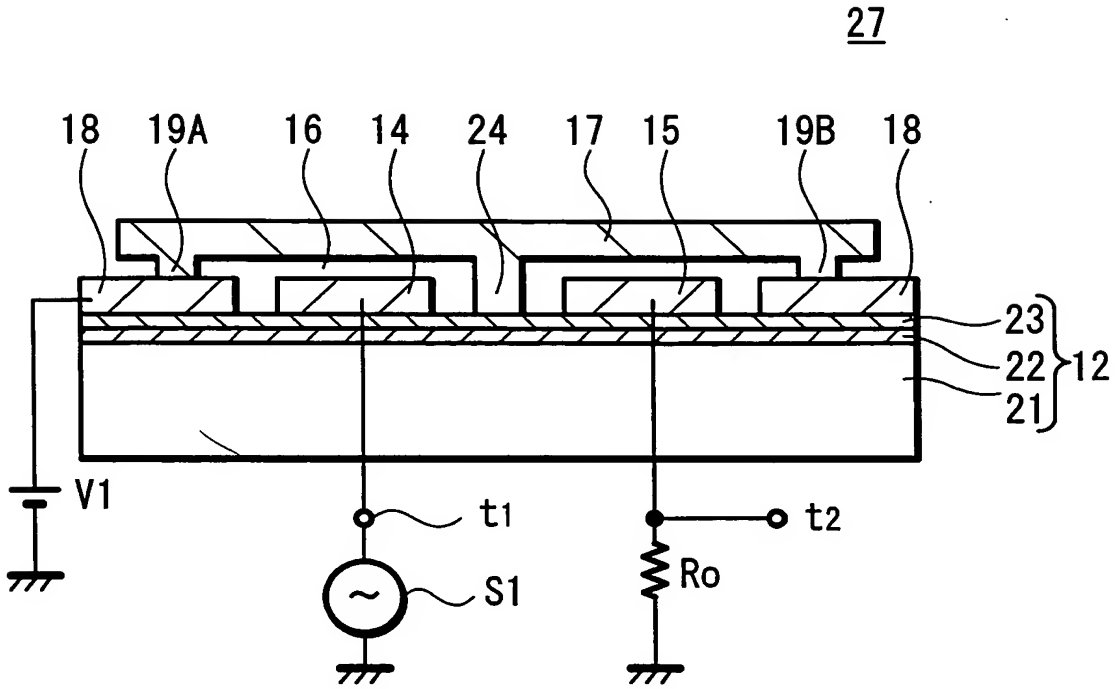

27
18
19A
16
14
24
17
15
19B
18
23
22
21
12
V1
t1
t2
S1
Ro

FIG. 2

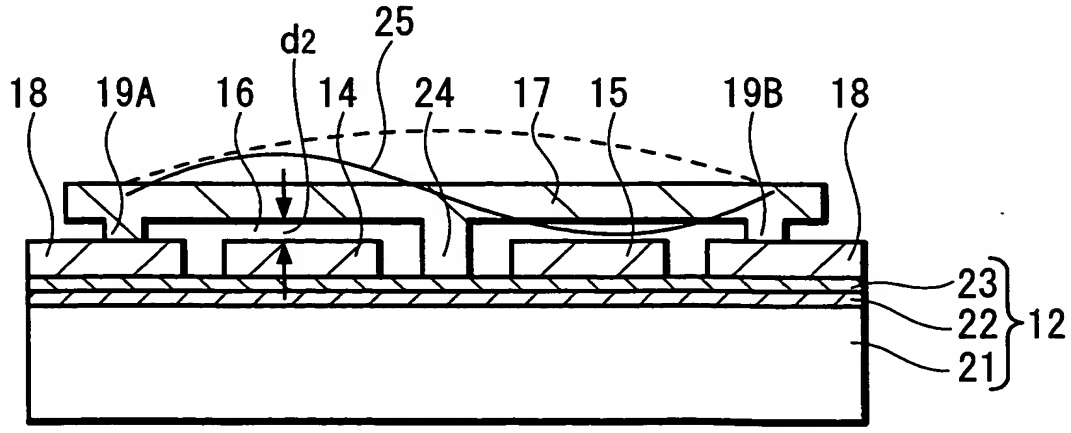

d2
25
18
19A
16
14
24
17
15
19B
18
23
22
21
12

FIG. 3A

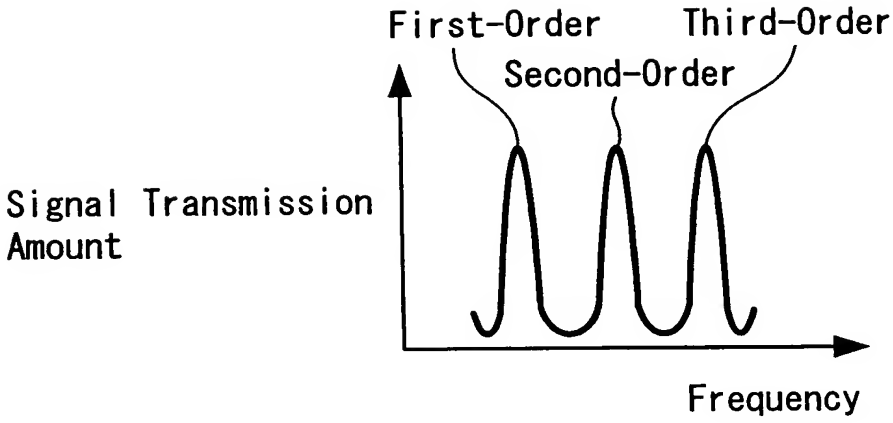

First-Order
Third-Order
Second-Order
Signal Transmission Amount
Frequency

FIG. 3B

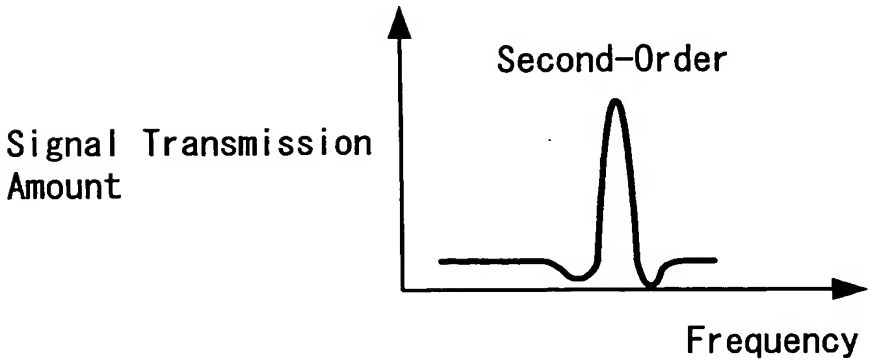

Second-Order
Signal Transmission Amount
Frequency

FIG. 4

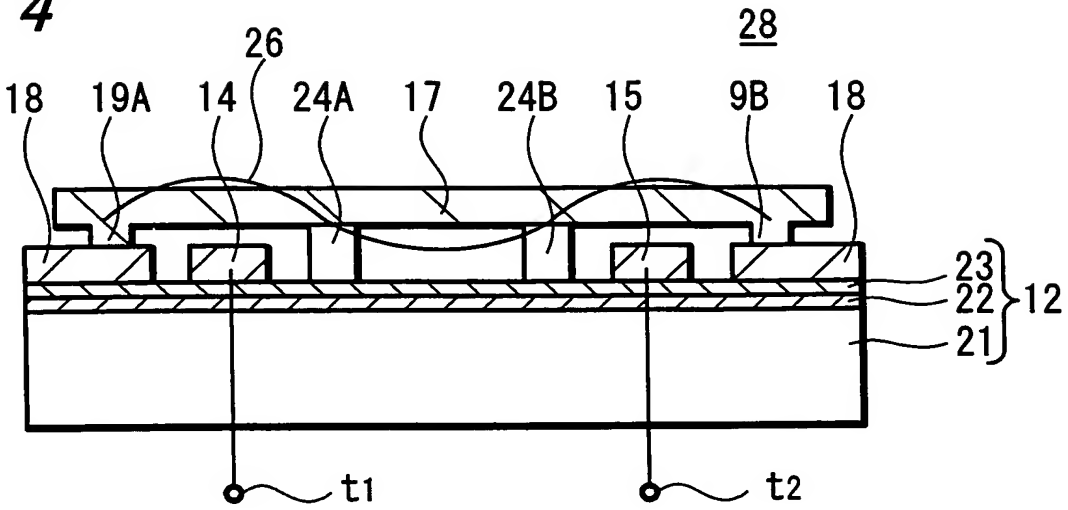


FIG. 5

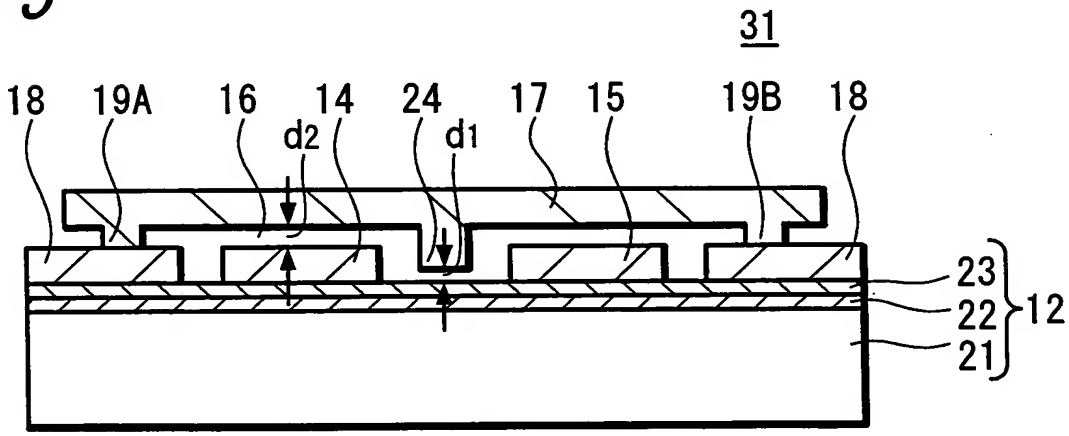


FIG. 6

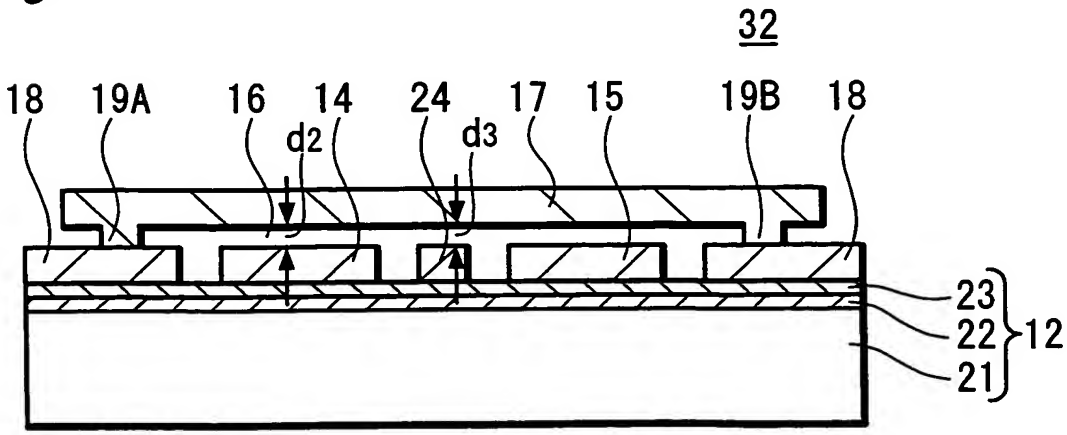


FIG. 7A

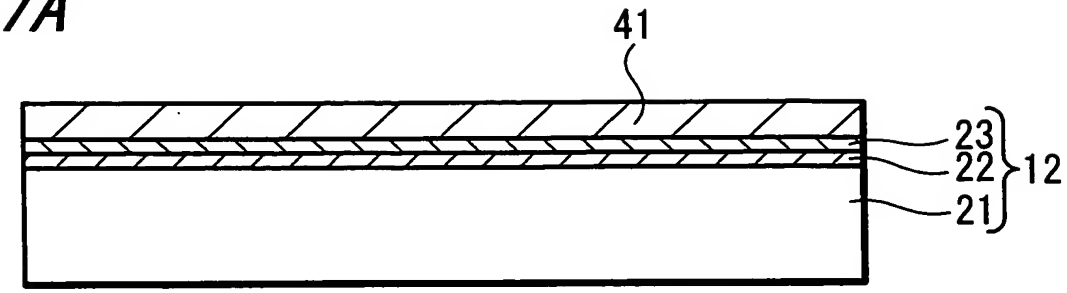


FIG. 7B

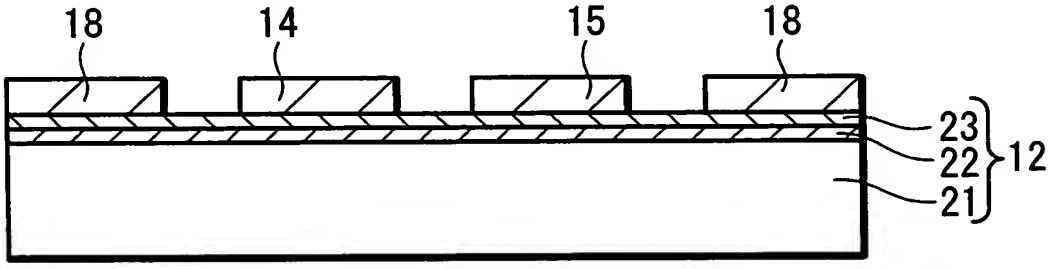


FIG. 7C

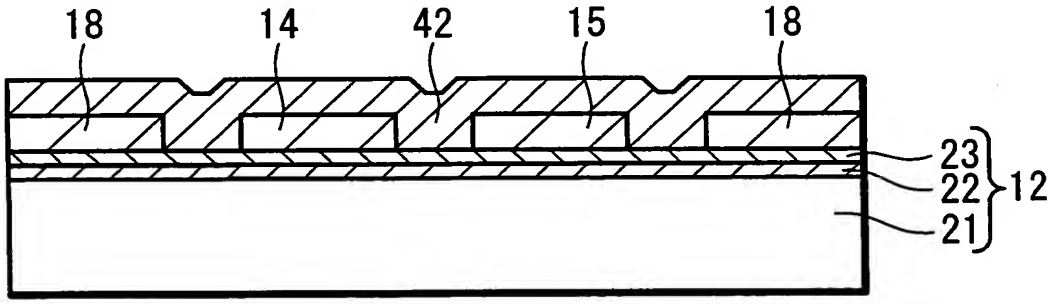


FIG. 7D

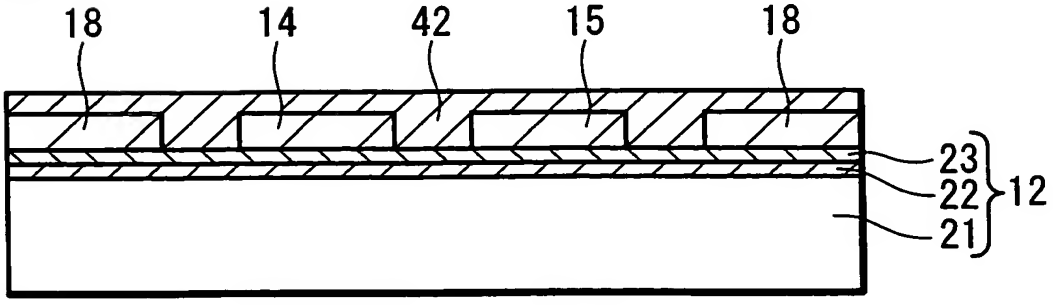


FIG. 8A

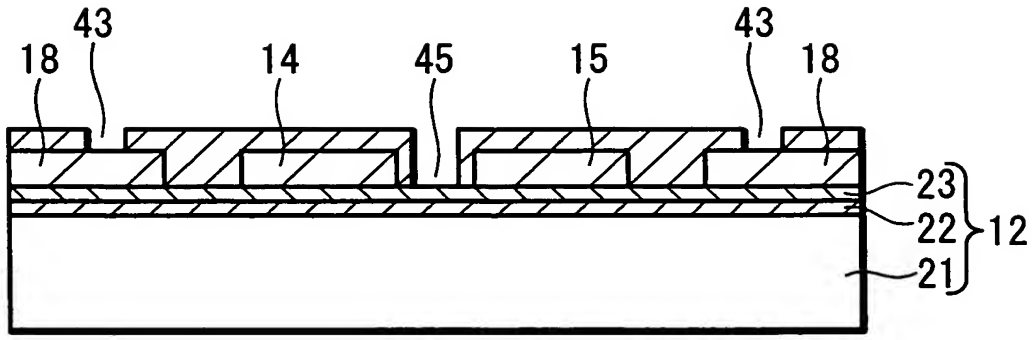


FIG. 8B

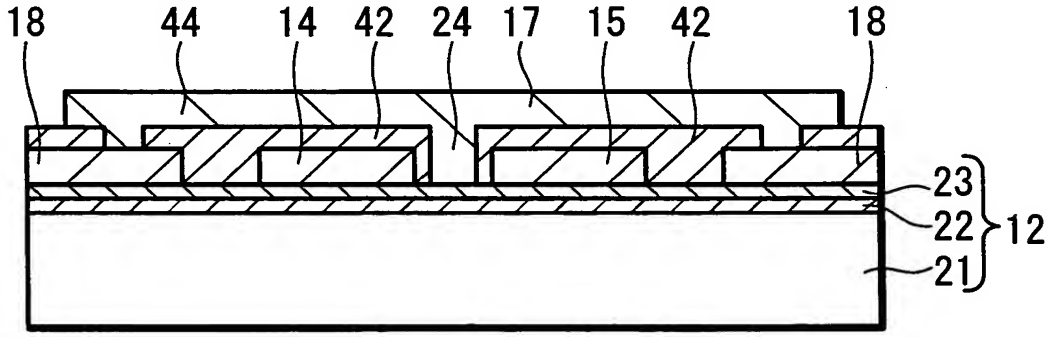


FIG. 8C

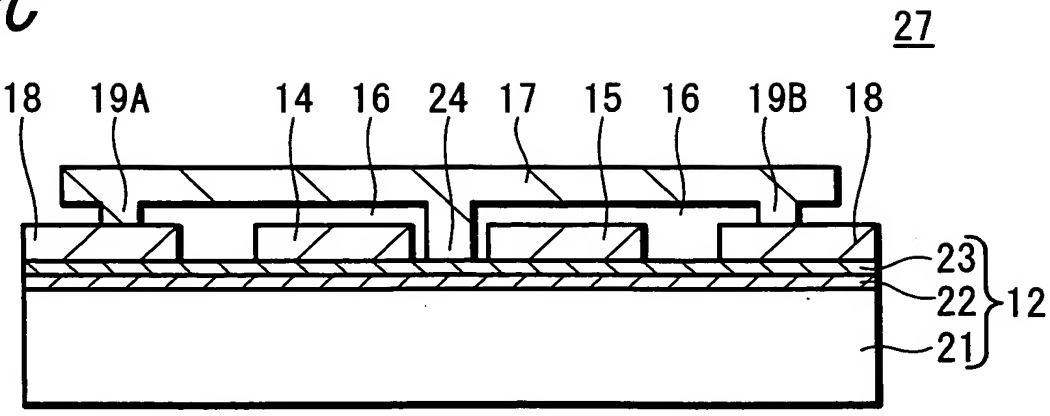


FIG. 9A

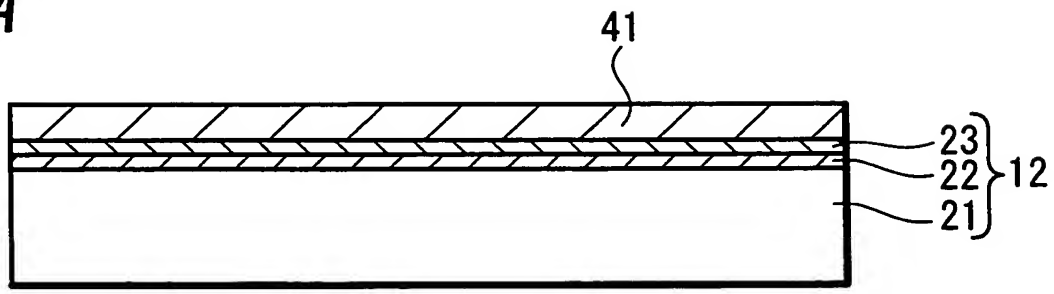


FIG. 9B

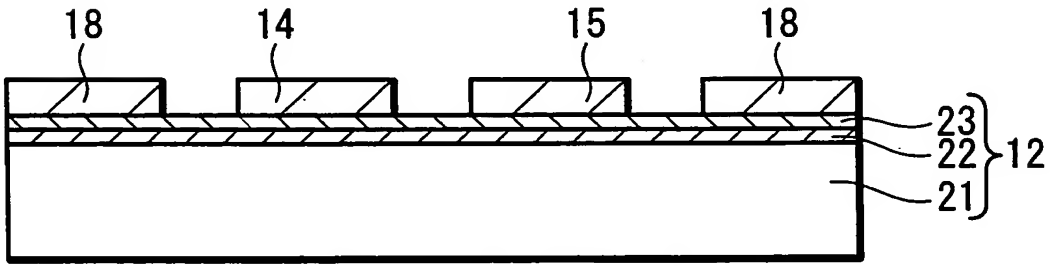


FIG. 9C

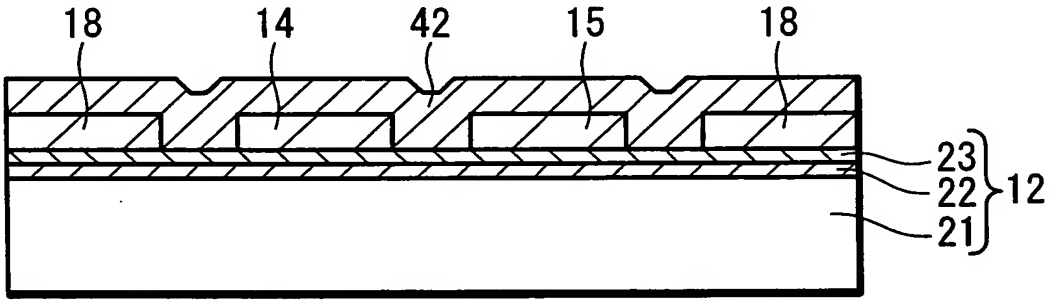


FIG. 9D

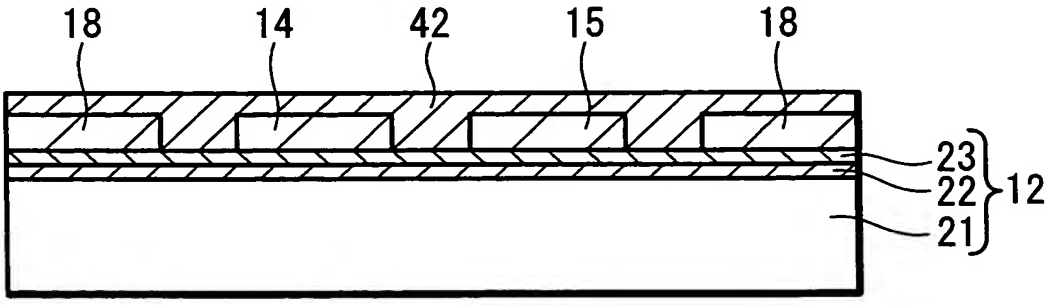


FIG. 10A

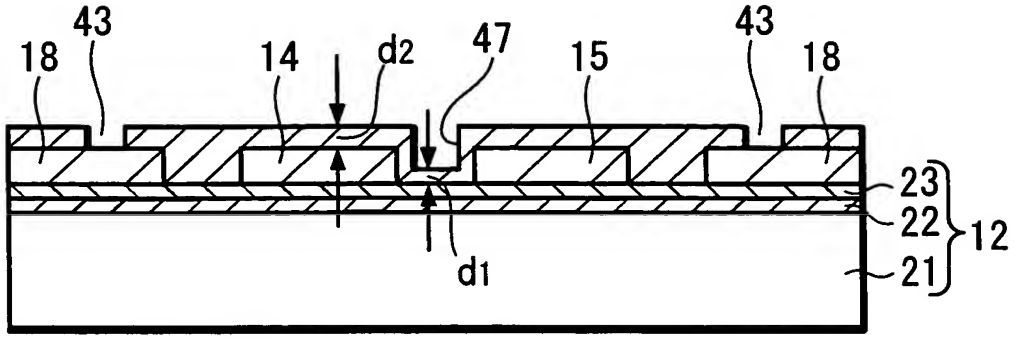


FIG. 10B

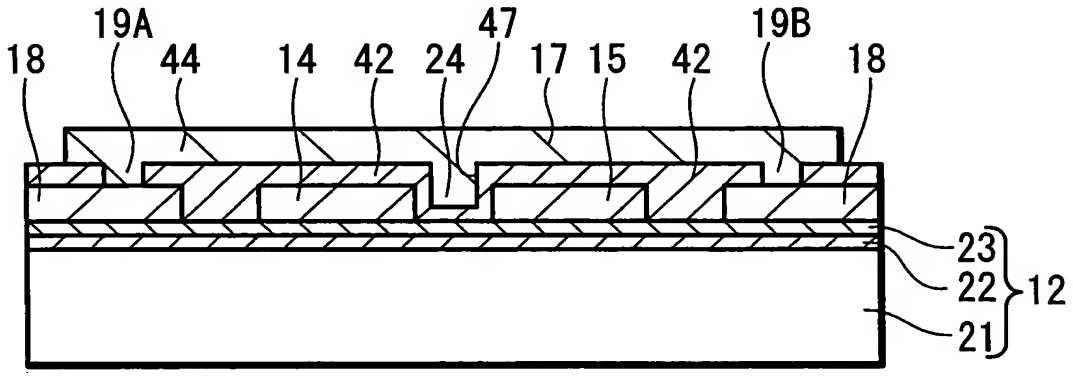


FIG. 10C

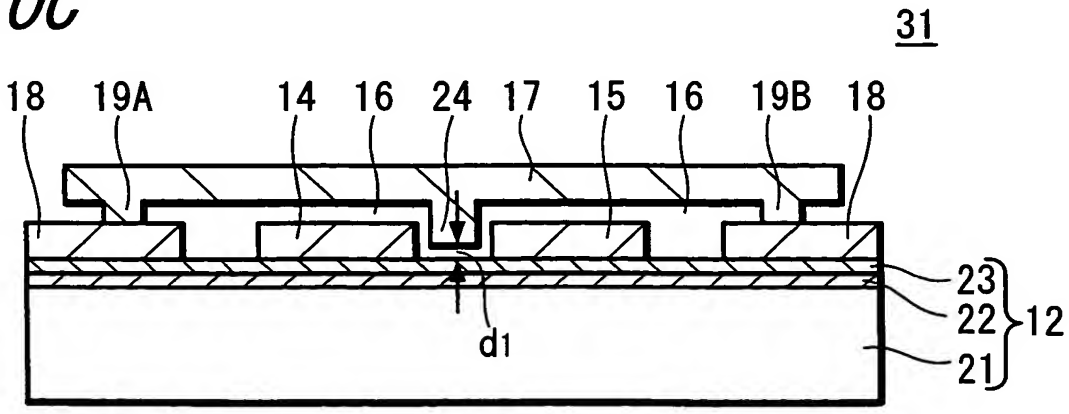


FIG. 11A

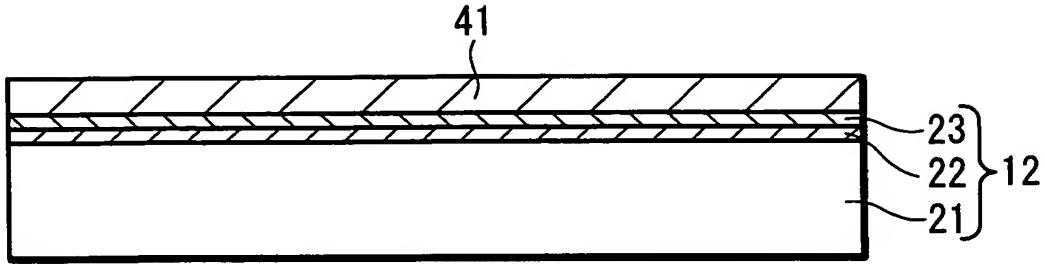


FIG. 11B

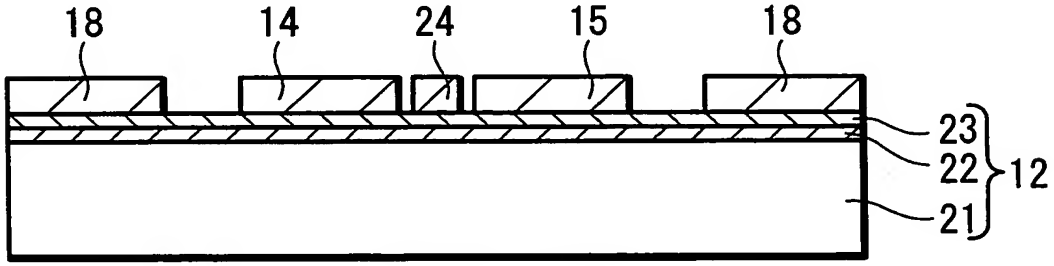


FIG. 11C

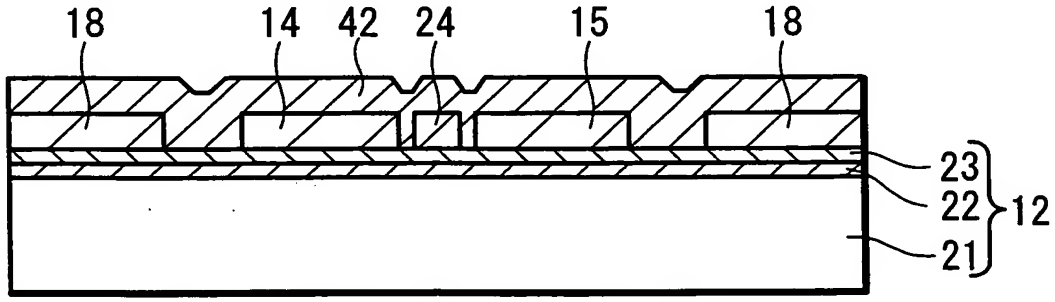


FIG. 11D

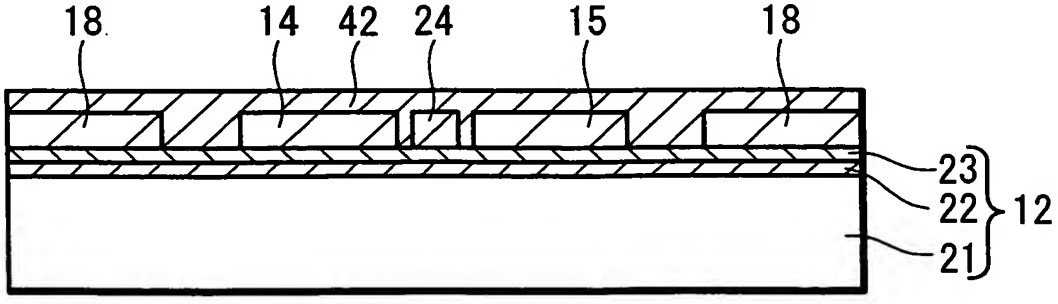


FIG. 12A

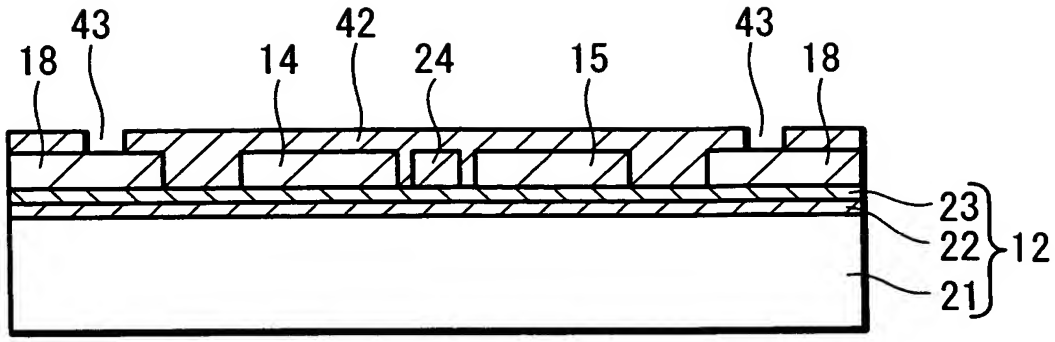


FIG. 12B

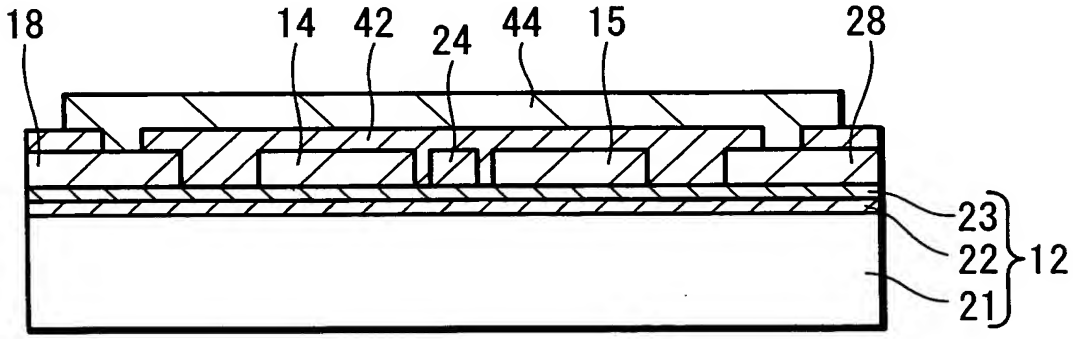


FIG. 12C

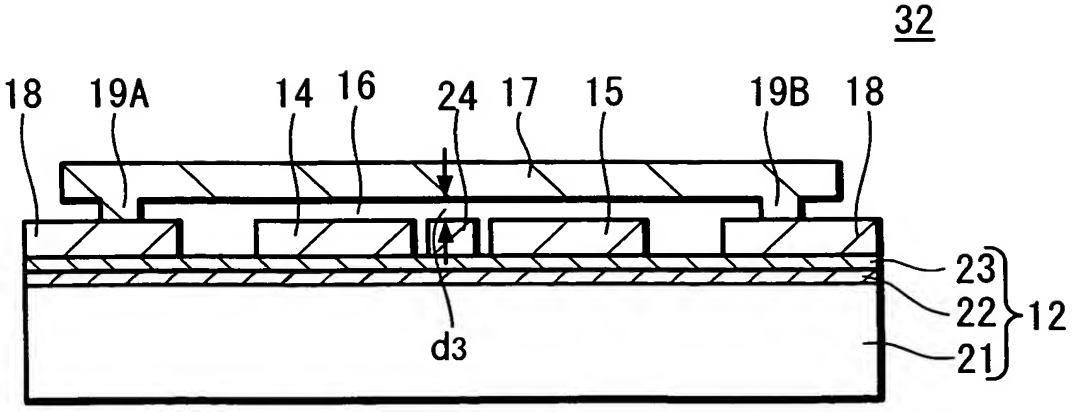
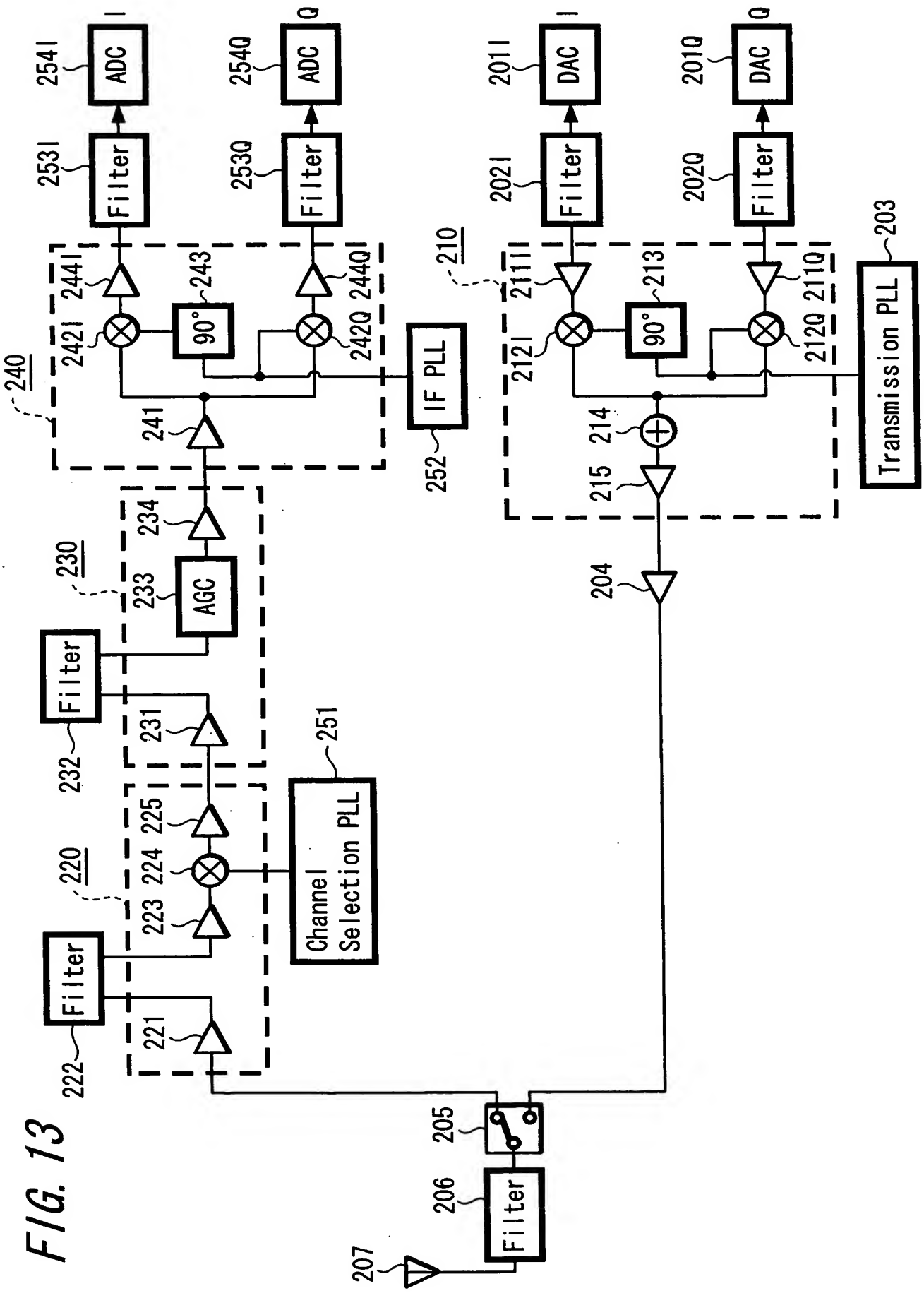


FIG. 13


ADC
ADC
DAC
DAC
Filter
Filter
Filter
Filter
Filter
Filter
Filter
90°
90°
AGC
IF PLL
Transmission PLL
Channel Selection PLL
2541
2540
2011
2010
2531
2530
2021
2020
240
241
242I
244I
243
242Q
244Q
210
211I
212I
213I
211Q
212Q
214
215
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204
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FIG. 14

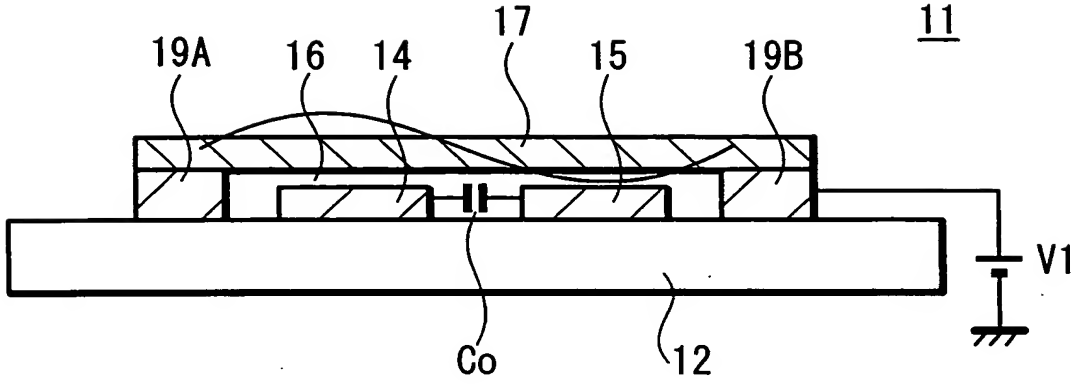
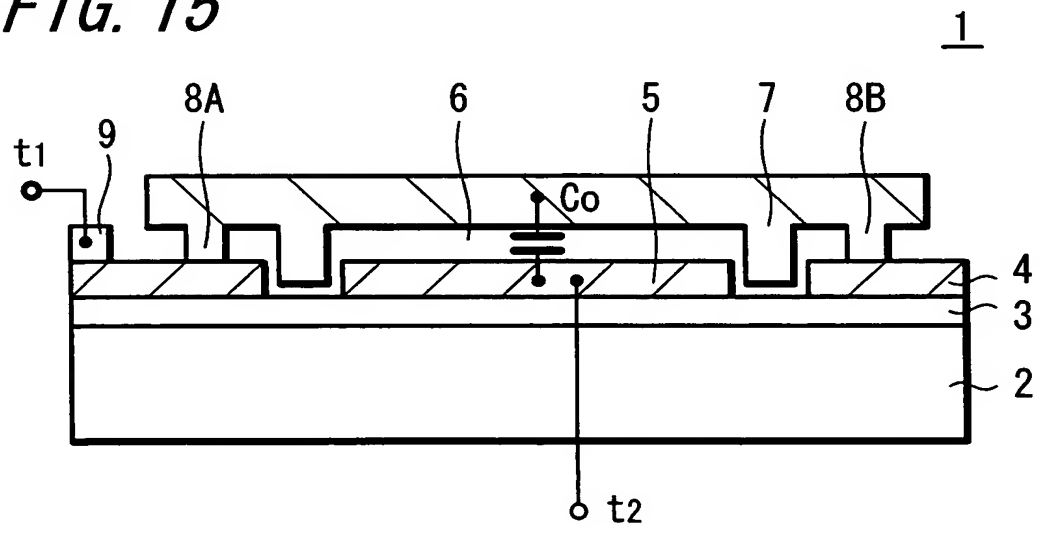


FIG. 15



DESCRIPTION OF REFERENCE NUMERALS

1 --- OSCILLATION ELEMENT

2 --- SEMICONDUCTOR SUBSTRATE

3 --- INSULATION FILM

4 --- INPUT-SIDE WIRING LAYER

11, 27, 28, 31, 32 --- MEMS-TYPE RESONATOR

12 --- SUBSTRATE

14, **14A**, **14B** --- INPUT ELECTRODE

5, 15 --- OUTPUT ELECTRODE

6, 16 --- SPACE

7, 17 --- OSCILLATION ELECTRODE

18 --- WIRING LAYER

8 [8A, 8B], 19 [19A, 19B] --- SUPPORT PORTION

21 --- SILICON SUBSTRATE

22 --- SILICON OXIDE FILM

23 --- SILICON NITRIDE FILM

24 [24A, 24B] --- SUPPORT COLUMN

25 --- SECOND-ORDER OSCILLATION MODE

26 --- THIRD-ORDER OSCILLATION MODE

41 --- CONDUCTIVE FILM

42 --- SACRIFICE LAYER

43 --- CONTACT HOLE

44 --- CONDUCTIVE FILM

45, 47 --- OPENING

31 --- SILICON NITRIDE FILM

32 --- SILICON NITRIDE FILM

33 --- INSULATION FILM

34 --- SILICON SUBSTRATE

S1 --- HIGH FREQUENCY SIGNAL

t1 --- INPUT TERMINAL

t2 --- OUTPUT TERMINAL

V1 --- DC BIAS VOLTAGE

36 --- POLYCRYSTALLINE SILICON FILM

37 --- SILICON OXIDE FILM

38 --- OPENING

39 --- SACRIFICE LAYER

41 [41A, 41B] --- OPENING

42 --- CONDUCTIVE MATERIAL LAYER

201I, 201Q --- DIGITAL/ANALOGUE CONVERTER

202I, 202Q, 211I, 211Q --- BAND-PASS FILTER

210 --- MODULATOR

212I, 212Q --- MIXER

203 --- PLL CIRCUIT

213 --- PHASE SHIFTER

214 --- ADDER

215 --- BUFFER AMPLIFIER

204 --- POWER AMPLIFIER

205 --- TRANSMISSION-RECEPTION SWITCHING UNIT

206 --- HIGH FREQUENCY FILTER

207 --- ANTENNA

220 --- HIGH FREQUENCY PORTION

221 --- LOW NOISE AMPLIFIER

244I, 244Q --- BUFFER AMPLIFIER

222, 232 --- BAND-PASS FILTER

223, 225, 231, 234 --- BUFFER AMPLIFIER

224 --- MIXER

251 --- CHANNEL SELECTION PLL CIRCUIT

233 --- AGC CIRCUIT

240 --- DEMODULATOR

252 --- INTERMEDIATE FREQUENCY PLL CIRCUIT

242I --- MIXER

243 --- PHASE SHIFTER

253I, 253Q --- BAND-PASS FILTER

254I, 254Q --- ANALOGUE/DIGITAL CONVERTER